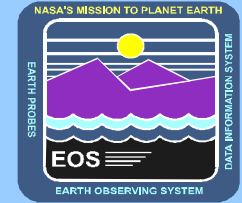




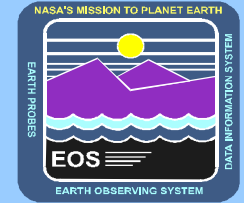
DMS Design Description



- ◆ **Provides components for accessing data/service providers**
 - **Geographically Distributed**
 - **ECS and non-ECS**
- ◆ **Components hide underlying architecture from the Client.**
 - **DIMGR - Decomposes requests that involve requests to components at multiple sites.**
 - **LIMGR - Decomposes requests involving requests to multiple servers within a site.**
 - **GTWAY - Decomposes requests either from ECS to Version 0 servers or vice versa -- protocol translator**
 - **ASTGW - Same as GTWAY but to and from ASTER GDS in Japan.**



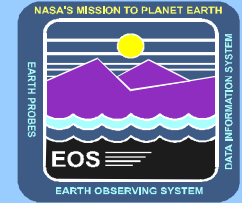
DMS Design Description (cont.)



- ✦ **Data Dictionary provides the key to the DMS.**
 - **Maintains attribute definitions for use by Client and other DMS components.**
 - **Maintains collection mappings to servers and attributes**
 - **Allows users to retrieve definitions of attributes and their domains to better understand the searches they can construct in the Client.**



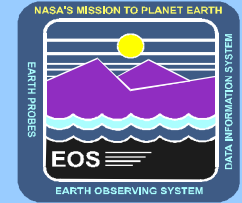
Data Management Components



- ✦ **LIMGR CSCI - Local Information Manager, CSCs include:**
 - **Request Processing** - parses searches and service requests to go to the appropriate locations.
 - **External Interface** - “talks” to the other servers such as SDSRV
 - **Mapper** - Maps terminology from ECS terms to those of external entities and the reverse direction as well.
 - **DBI** - Database interface (uses RW Dbtools)
 - **Client Library** - used by LIM/DIM/GTWAY clients
 - **Server Library** - Accepts requests from client library; built on top of SRF.
 - **Server** - Links all of the above into a Unix process.



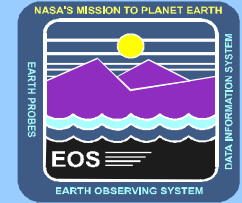
Data Management Components (cont.)



- ✦ **DIMGR - Distributed Information Manager, includes CSCs:**
 - **Server - Links all LIMGR libraries.**
 - **Primary difference between LIMGR and DIMGR is configuration (scope of access).**
- ✦ **DDICT - Data Dictionary Service**
 - **DDICT Client Library**
 - **DDICT Server Library**
 - **DDICT Request Processing - simpler than LIMGR.**
 - **DDICT Server - Links all above into one process.**



Data Management Components (cont.)



◆ GTWAY - V0 Gateway

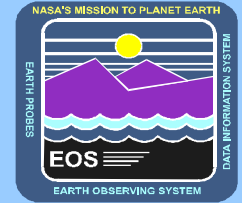
- ECS To V0 Server - Links LIMGR libraries and V0 Interface Library into an ECS-V0 Gateway Server
- V0 Interface Library - provides support to convert requests to ODL (Object Definition Language)
- V0 To ECS Request Processing - Library to process requests from V0
- Persistent Library - Queries DDICT database to map terms and resolve directory queries.
- V0 To ECS Server - Links V0 to ECS Req. Proc and Persistent into a V0-ECS Gateway Server

◆ ASTGW - ASTER Gateway

- Similar in design to V0 GTWAY, but reuses LIMGR libraries in ASTER-ECS direction so it can act like a DIMGR



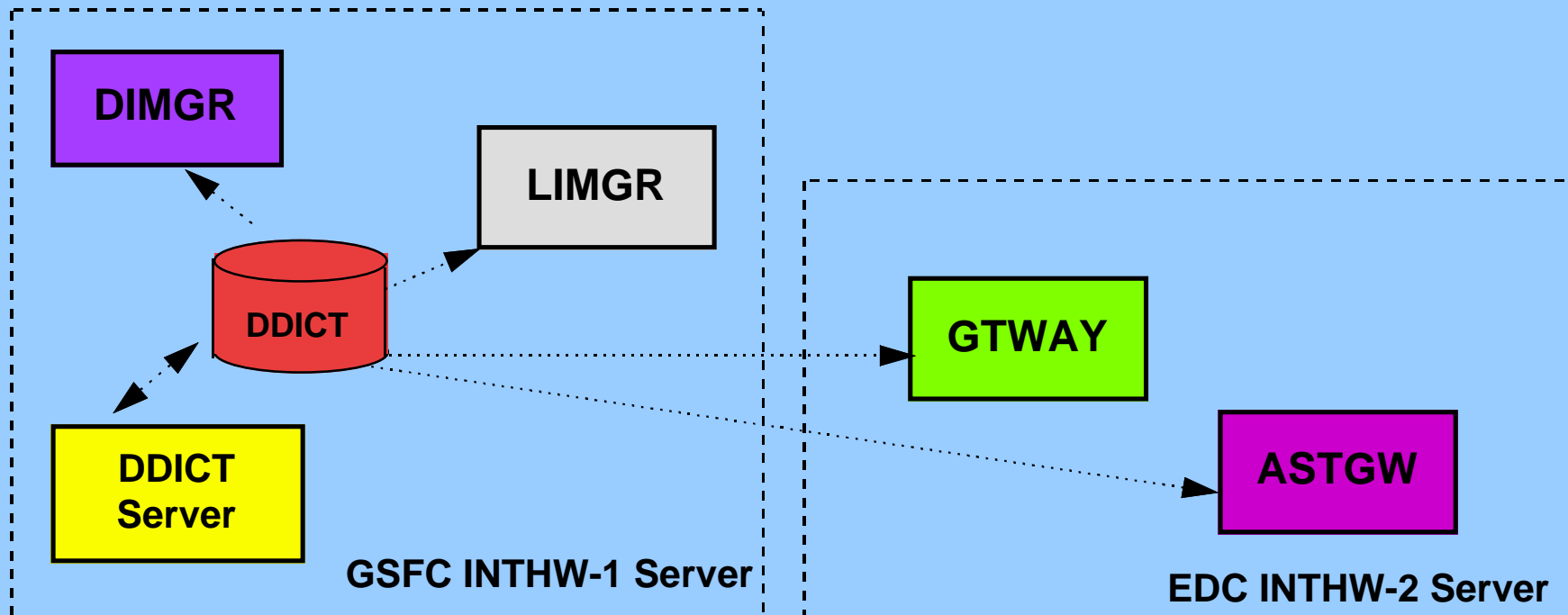
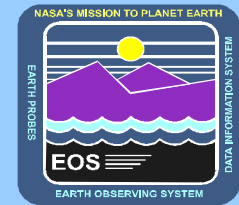
Data Management Hardware



- ◆ **DMS Software runs on 2 SPARC servers:**
 - **DIM/LIM/DDICT/Sybase run on INTHW-1**
 - **GTWAY/ASTGW run on INTHW-2**
 - **INTHW-1 also runs ADSRV and Netscape Server**
 - **INTHW-2 also runs DAR Gateway (IDG) and Client**



DMS HW/SW Architecture

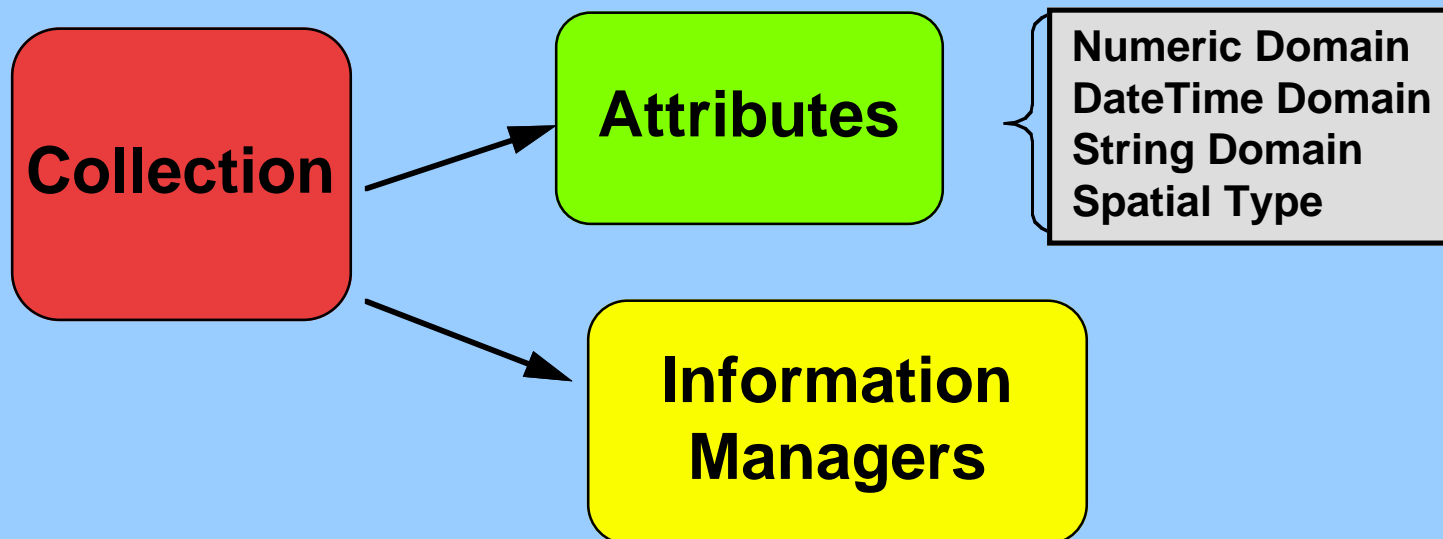
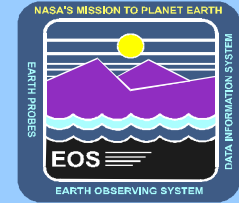


***LaRC, NSIDC, ORNL, ASF, JPL, CDAAC
would have same configuration as GSFC***

Data Management Subsystem



DDICT Contents



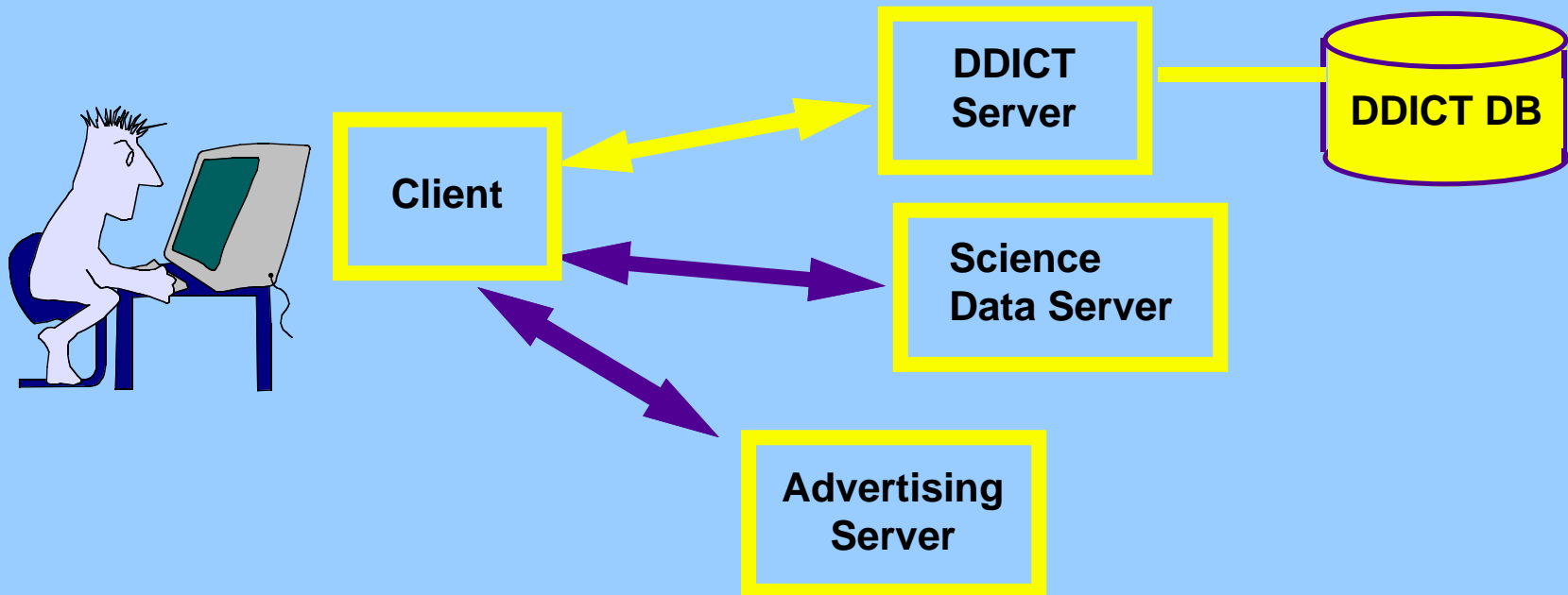
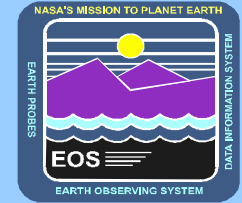
DDICT Queried for Information about ECS Data, Attributes, Domains

- Used to formulate “correct” queries to ECS Servers
- Details for legal attribute domains and “queryable” objects
- Descriptions about the data and attributes

♦ Three potential sources of the information: SDSRV when establishing an ESDT, DDICT Maintenance Tool to set up LIM/DIM/GTWAY/ASTGW, and external providers who have reused ECS software (SDSRV or LIM)



Data Dictionary Usage Scenario (Single Server)

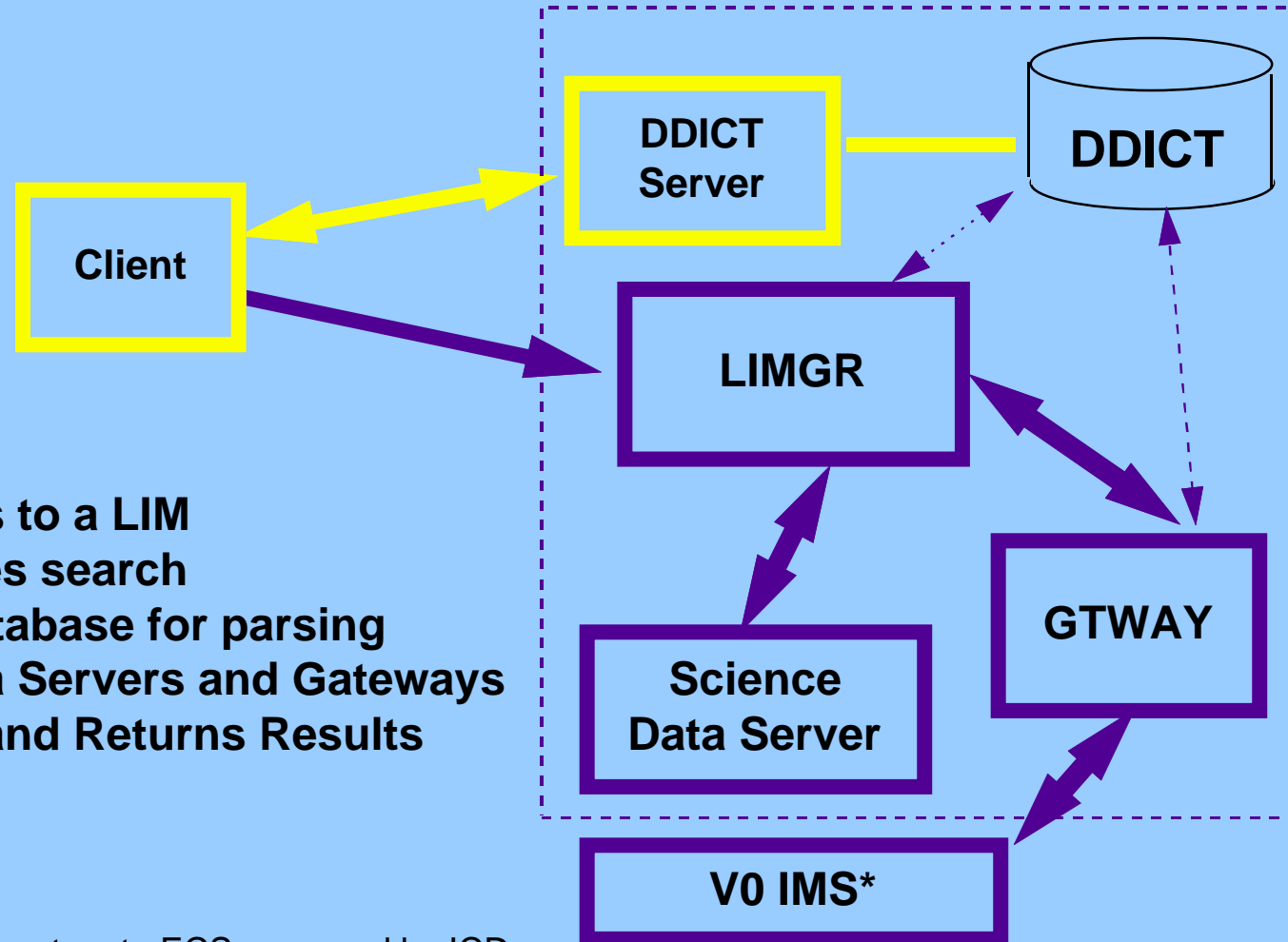
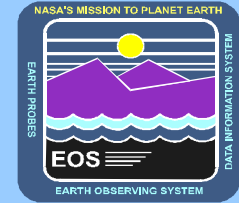


Client determines from the search contents that the search can be sent to one SDSRV (from DDICT information)

- ◆ **Client finds binding information from Advertising**
- ◆ **Client connects to SDSRV and submits search**



Single Site Scenario Multiple Servers

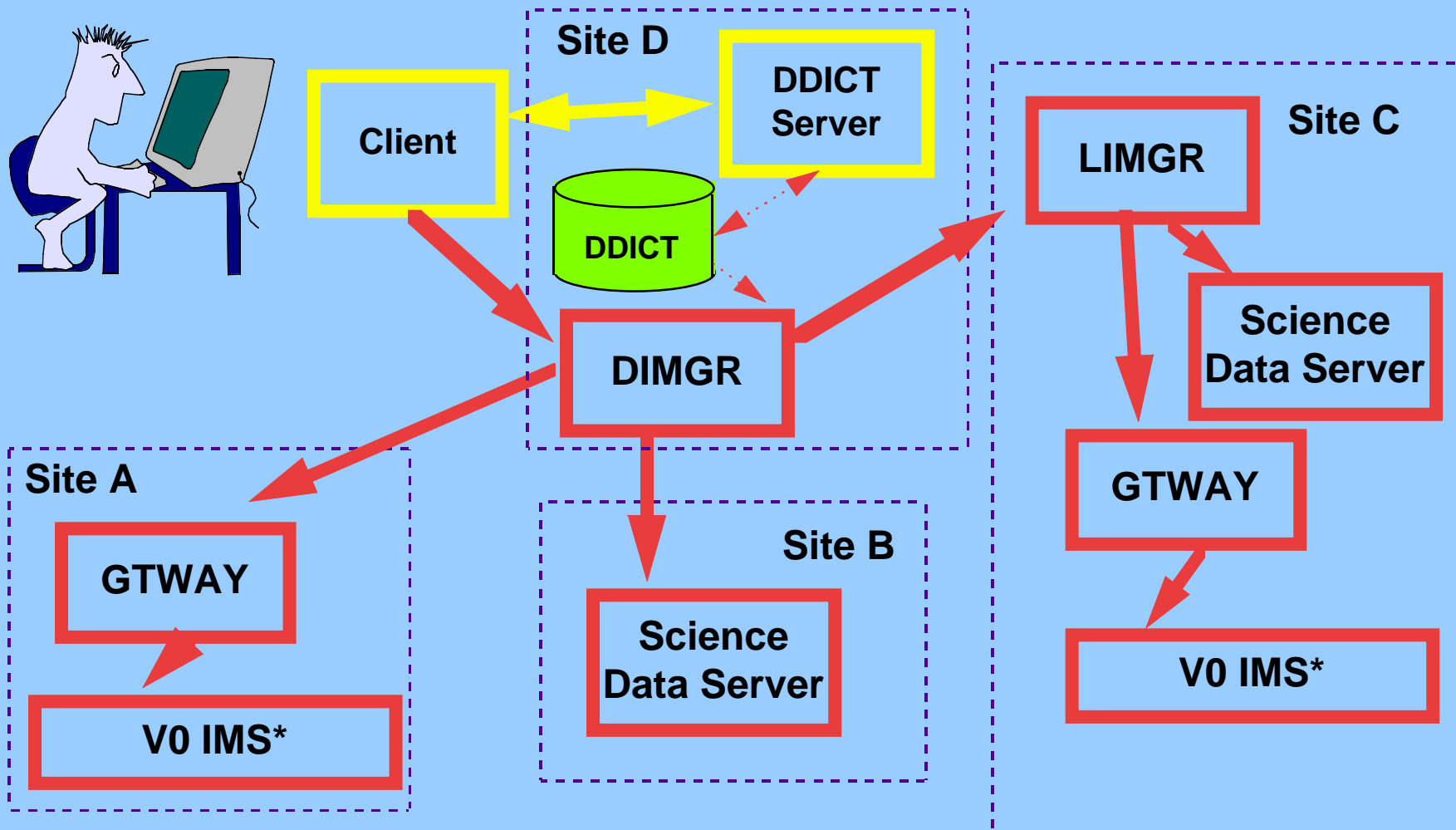
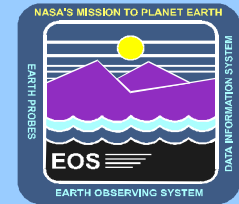


- ◆ Client Connects to a LIM
- ◆ LIM decomposes search
- ◆ Uses DDICT Database for parsing
- ◆ Submits to Data Servers and Gateways
- ◆ LIM Integrates and Returns Results

* V0 IMS is external system to ECS governed by ICD



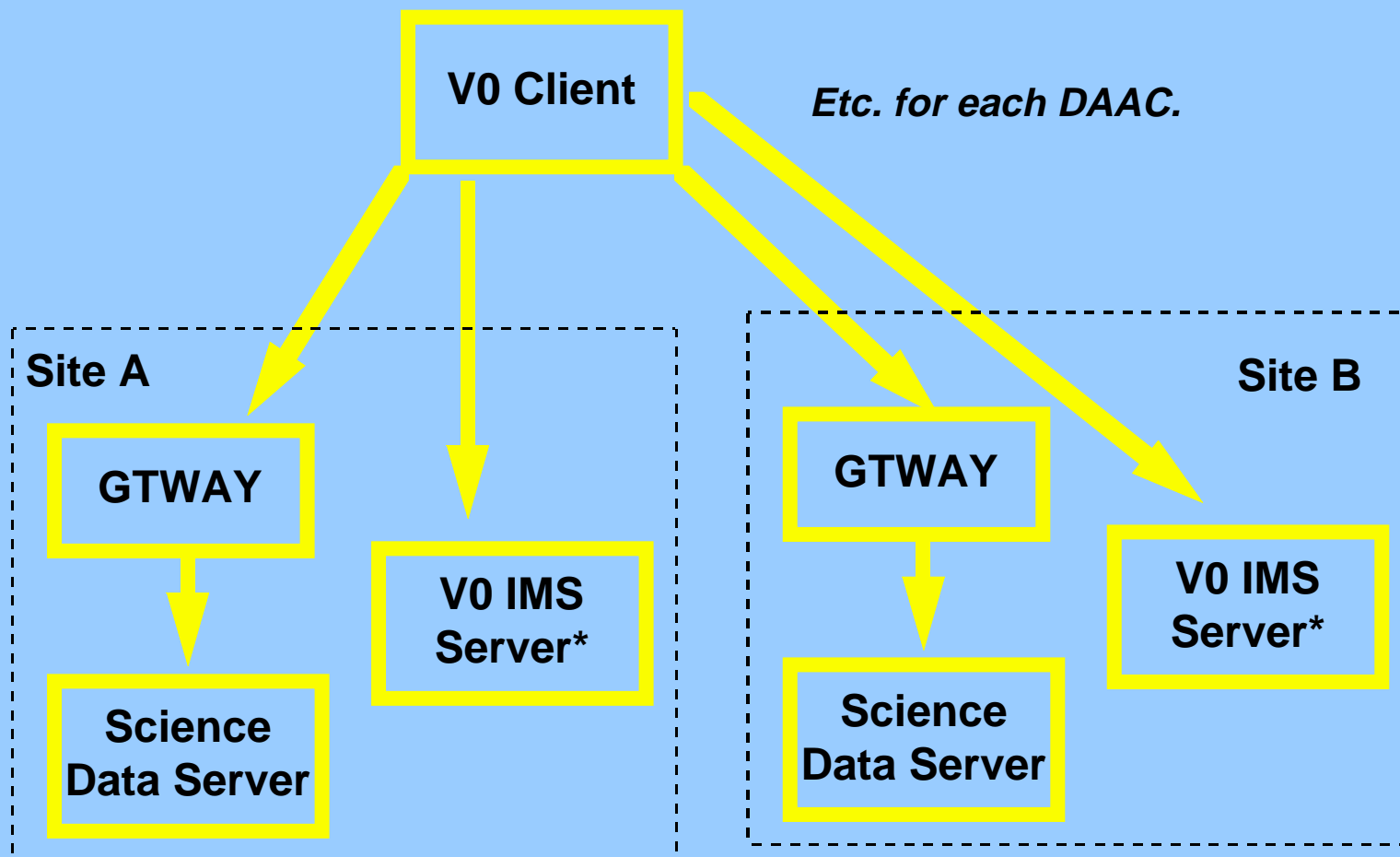
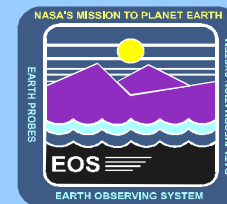
Multiple-Site Queries



* V0 IMS is external system to ECS governed by ICD



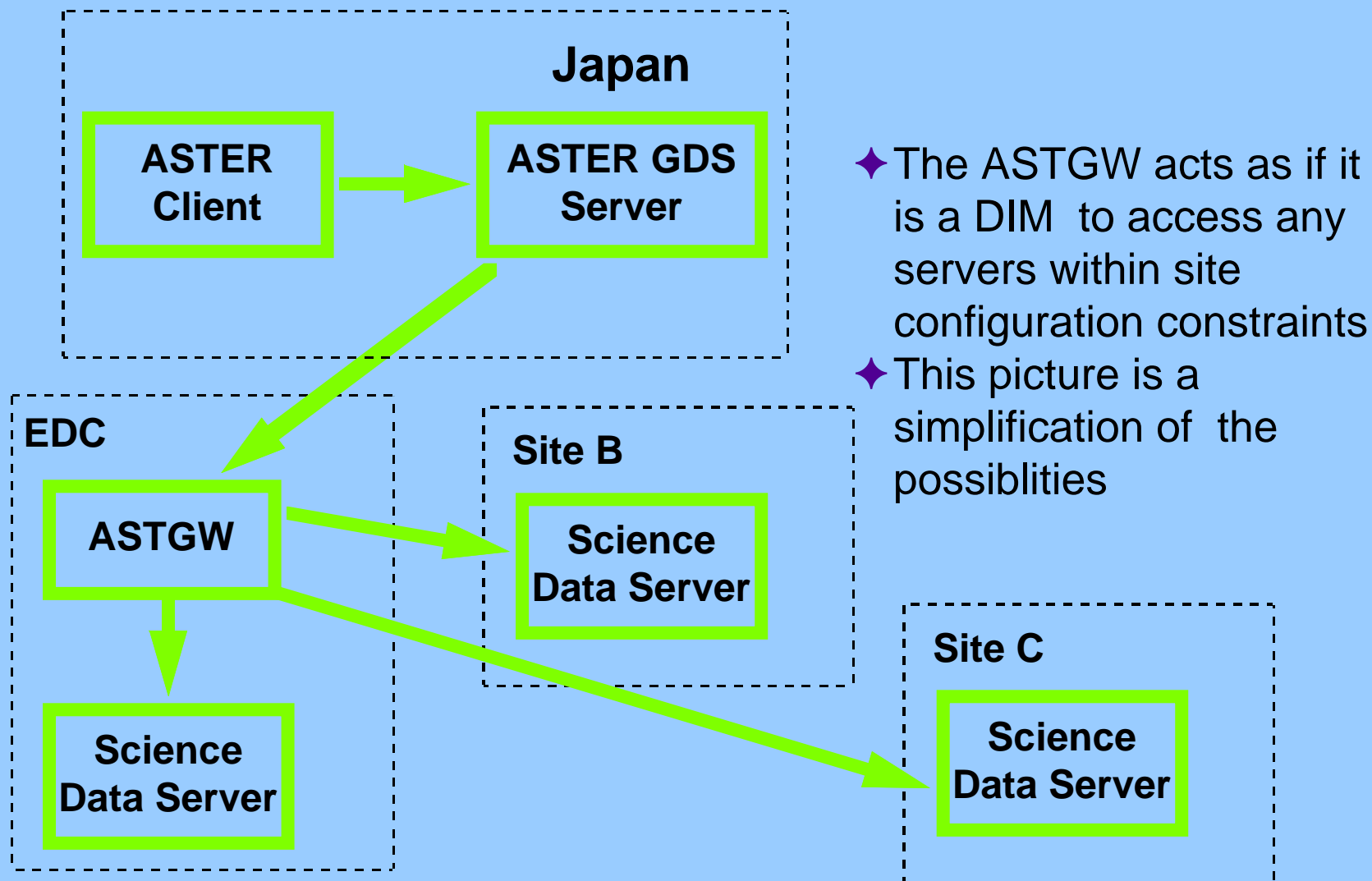
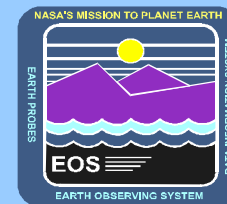
V0 to ECS Interoperability



* V0 IMS is external system to ECS governed by ICD

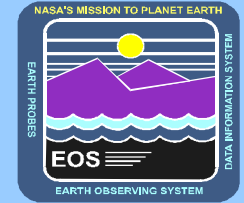


ASTER to ECS Interoperability





Summary



- ✦ **Advertising Service serves two main functions:**
 - **Infrastructure component for other subsystems to find services**
 - **Service and data discovery component for the science end user**
- ✦ **Data Management Subsystem provides the following functions:**
 - **Search and data access services for multiple sites and servers transparently to the client applications.**
 - **Descriptions of collections and the metadata attributes of those collections**
 - **Translates between different protocols to access external systems**